

PURCHASE DESCRIPTION

SWEEP GENERATOR (1 MHz TO 2.5 GHz)

GE1CM-B

1.0 GENERAL This procurement requires a sweep generator capable of generating signals over a frequency range of 1 MHz to 2.5 GHz.

2.0 CLASSIFICATION The equipment shall meet the requirements of MIL-T-28800( ), Type III, Class 5, Style E, Color R for Navy shipboard, submarine, and shore applications with the following modifications and exceptions:

- a. The Electromagnetic Interference requirements of MIL-T-28800( ) are limited to CE01, CE03, CS01, CS02 (0.05 to 100 MHz), CS06, RE01 (back panel search excluded), RE02 (14 kHz to 10 GHz), and RS03.
- b. The warm-up time is extended to one hour.

3.0 OPERATIONAL REQUIREMENTS The equipment shall be capable of generating signals within the parameters and accuracies specified herein.

3.1 Frequency Characteristics

3.1.1 Range: At least 1 MHz to 2.5 GHz

3.1.2 Drift (after 1 hour warm-up at 25°C ±5°C)

3.1.2.1 1 to 1500 MHz: Less than 250 kHz/h

3.1.2.2 1500 to 2500 MHz: Less than 500 kHz/h

3.1.3 Accuracy (CW)

- 3.1.3.1 1 to 500 MHz: At least  $\pm 10$  MHz
- 3.1.3.2 500 to 2500 MHz: At least  $\pm 20$  MHz
- 3.1.4 Spectral Purity (equal to or less than the limits specified below)
  - 3.1.4.1 Harmonics: -20 dBc from 1 to 10 MHz; -30 dBc from 10 MHz to 2.5 GHz
  - 3.1.4.2 Nonharmonics: -35 dBc
  - 3.1.4.3 Residual FM: Less than 20 kHz p-p
- 3.2 Output Characteristics
  - 3.2.1 Range: At least -77 to +13 dBm; continuously variable
  - 3.2.2 VSWR: Less than 1.5:1 (10 dB attenuation minimum)
  - 3.2.3 Accuracy: At least  $\pm 1.0$  dB from +13 dBm to -20 dBm with an additional  $\pm 0.3$  dB/10 dB step  
below -20 dBm
  - 3.2.4 Flatness: Less than  $\pm 0.5$  dB at 0 dBm
  - 3.2.5 Impedance/Connector: 50  $\Omega$ ; type N female
- 3.3 Sweep Characteristics
  - 3.3.1 Frequency Range: 1 MHz to 2500 MHz
  - 3.3.2 Sweep Time: At least 10 ms to 100 s; continuously adjustable
  - 3.3.3 Sweep Trigger Modes: Repetitive, single, external trigger, manual and line lock sweep
  - 3.3.4 Markers
    - 3.3.4.1 Steps: At least 1, 10, 50, 100 MHz
    - 3.3.4.2 Accuracy: At least .005% of setting
    - 3.3.4.3 Width: Adjustable from 15 to 400 kHz

### 3.4 Modulation Characteristics

#### 3.4.1 Internal

3.4.1.1 Square Wave: At least 1 kHz

#### 3.4.2 External

##### 3.4.2.1 Frequency Modulation

3.4.2.1.1 Rate: 50 Hz to 10 kHz

3.4.2.1.2 FM Deviation: 0 to at least 50 MHz

##### 3.4.2.2 Amplitude Modulation

3.4.2.2.1 Range: At least DC to 10 kHz

3.4.2.2.2 Depth: At least 10 to 90%

3.4.2.2.3 Sensitivity: Less than 1 Vp-p for 10% modulation

### 4.0 GENERAL REQUIREMENTS

4.1 Power 115/230 Vac  $\pm 10\%$  single phase, 50, 60 or 400 Hz, 60 VA maximum

4.2 Lithium Batteries Per MIL-T-28800, lithium batteries are prohibited without prior authorization.

Requests for approving the use of lithium batteries, including those encapsulated in integrated circuits, shall be submitted to the procuring activity at the time of submission of proposals. Approval shall apply only to the specific model proposed.

4.3 Dimensions The total unit volume shall not exceed 20,450 cm<sup>3</sup> (1250 in<sup>3</sup>).

4.4 Weight The total weight of the unit shall not exceed 10.5 kg (23 lb).

4.5 Calibration Interval The calibration interval shall be 12 months minimum. The equipment shall be within all accuracy requirements specified herein, with a 72% or greater confidence factor following a calibration interval of 12 months.